Trend Study 4-8-01

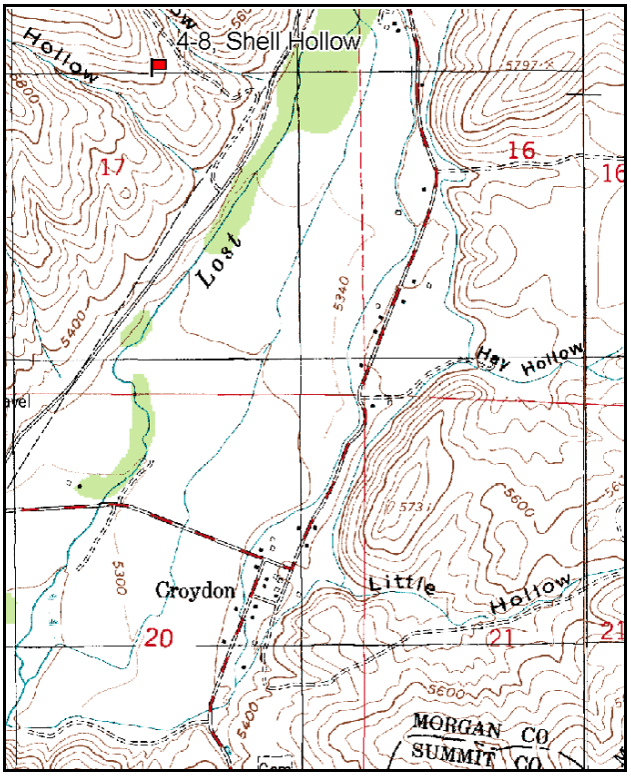
Study site name: Shell Hollow . Vegetation type: Big Sagebrush .

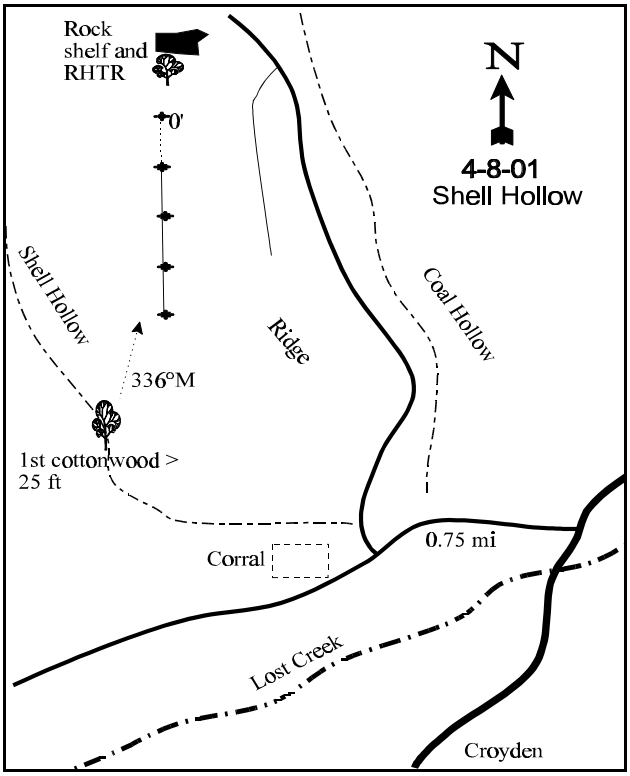
Compass bearing: frequency baseline 159 degrees magnetic.

Frequency belt placement: Line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From 6900 East and 1900 South in Croyden, proceed east 1.55 miles to a road paralleling Lost Creek. Turn left here and travel 0.75 miles to Coal Hollow Road. Just east of the road is a corral. Northwest of the corral is the ravine, Shell Hollow. Walk up Shell Hollow to the first cottonwood tree over 25 feet tall. Nearby should be a small drainage up the slope to the right. From the tree, take a bearing of 351 degrees true and walk approximately 150 yards up-slope to the 0-foot stake of the baseline marked by browse tag #7947. Ten feet north of the 0-foot stake is a sumac and a rocky shelf behind. Just east of the 0-foot stake is a large rock with a perfect seat carved by the wind. Contact the land owner prior to accessing the site.





Map Name: Devil's Slide

Diagrammatic Sketch

Township 4N , Range 4E , Section 17

UTM 4547986 N 456489 E

DISCUSSION

Trend Study No. 4-8

The Shell Hollow study is located on a small ridge between Shell Hollow and Coal Hollow on the west side of Lost Creek. The area has been considered critical deer winter range in the past with a south aspect and a steep 30% slope. The study samples an impoverished and in the recent past, over grazed mountain big sagebrush hillside community 150 yards above shell hollow. Winter deer and spring sheep use was heavy in the past on the key species as well as understory plants. Few perennial grasses or forbs remain. Cattle were present along the creek during the 1996 reading and had already utilized the available understory forage on the site. Few deer pellet groups were encountered on the site in 1996. A pellet group transect read on the site in 2001, estimated 21 deer and 2 cow days use/acre (51 ddu/ha and 5 cdu/ha). The age of the deer pellet groups suggests the site was used primarily during the winter.

The soil is moderately deep in places, but the average effective rooting depth is estimated at almost 11 inches. A hard pan layer was encountered in some places at about 8-10 inches. Soil texture is a sandy clay loam with a slightly alkaline soil reaction (pH of 7.8). The soil is very gravely, derived from a conglomerate parent material. Some large boulders are exposed. Due to the high rock content, steep south aspect, and dryness of the soil, soil temperatures are very high, averaging 78.2°F at a depth of nearly 12 inches. There is currently little bare soil exposed due to a dense stand of cheatgrass. No active gullies occur on the site, although some of the cattle trailing shows signs of erosion. The erosion condition class was determined as stable in 2001.

The key browse species is mountain big sagebrush. It appears to be hybridizing with basin big sagebrush *(Artemisia tridentata tridentata)* since many of the sagebrush on the site are tall and have the upright growth form of basin big sagebrush. Sagebrush accounted for 74% of the total shrub cover in 1996 and 84% in 2001. Sagebrush density was estimated at 4,800 plants/acre in 1984, remaining relatively stable until 1996. Density declined in 2001, to 3,340 plants/acre. Utilization was heavy on 24% of the shrubs in 1984, but light to moderate since then. Percent decadency has declined from a high of 54% in 1990 to 20% in 2001. Poor vigor steadily increased, reaching a high of 28% in 1996. In 2001, only 8% of the shrubs sampled displayed poor vigor. However, 36% of the decadent sagebrush sampled were classified as dying. A condition that could be foretelling what is going to happen in the future.

Stickyleaf low rabbitbrush, an increaser, has increased in density from 1,799 plants/acre in 1984 to 5,360 by 1996. Age class structure indicated an expanding population, but due to the dry conditions of the past few years, density of low rabbitbrush has actually declined by 15% in 2001. Broom snakeweed was picked up for the first time in 1996. It currently numbers only 280 plants/acre.

Perennial grasses and forbs are rare. Apart from occasional individuals of the listed species, herbaceous forage production came almost entirely (93%) from Japanese brome in 1996. Due to the dry conditions and timing of precipitation in 2001, nested frequency and cover of Japanese brome declined significantly, while frequency and cover of annual forbs increased dramatically.

1984 APPARENT TREND ASSESSMENT

Soil trend appears to be stable to slightly down and in poor condition. Cover, especially herbaceous cover, is poor. There is some litter but most is from dead cheatgrass and it affords little protection. Erosion is proceeding at a higher than acceptable rate. Vegetation conditions also appear to be stable to slightly declining. Although the sagebrush stand is in no immediate danger of disappearing, conditions are such that a long term decline is possible. This site has an extremely poor understory, a potential fire hazard from dead cheatgrass, and vigorous populations of invader and increaser shrubs are disturbing signs.

1990 TREND ASSESSMENT

The sagebrush on this privately owned winter range has generally good vigor and a moderately hedged growth form. Sagebrush canopy cover averages 29%. Recently, the range has been grazed by cattle. There is very little herbaceous understory vegetation, although several species of weedy forbs were encountered in 1990. The understory is in poor condition providing limited protective ground cover. There are obvious signs of soil erosion with exposed plant roots.

TREND ASSESSMENT
soil - down (1)
browse - stable (3)
herbaceous understory - slightly upward, but still in very poor condition (4)

1996 TREND ASSESSMENT

The soil trend is up due to a dramatic decline in percent bare ground. Unfortunately, most of the improvement is due to a dense stand of Japanese brome, cheatgrass, and rattlesnake brome which constitutes a significant fire hazard. No serious erosion is currently occurring. Trend for the mountain big sagebrush is stable. Sagebrush density appears to have reached carrying capacity for the site. Presently canopy cover of sagebrush averages just over 22%. Utilization is light to moderate and percent decadency has dropped to 24%. The only negative aspect of the stand is the high number of shrubs displaying poor vigor (28%). The herbaceous understory is poor and dominated by annual grasses and forbs. However, trend is up slightly due to an increase in the sum of nested frequency for perennial grasses and forbs.

TREND ASSESSMENT
soil - up (5)
browse - stable (3)
herbaceous understory - up slightly but dominated by annuals (4)

2001 TREND ASSESSMENT

Trend for soil is down slightly due to an increase in bare ground cover and a decline in litter cover. This trend is driven primarily by drought conditions which have persisted for the past few years. The dry conditions during the spring of 2001, have caused a significant decline in the nested frequency of Japanese brome. Cover averaged 26% in 1996, now it is only 2% in 2001. The lack of annual grasses has allowed a dramatic increase in the sum of nested frequency for annual forbs. Erosion is not severe and the erosion condition class was determined as stable in 2001. Trend for mountain big sagebrush is stable. Utilization is mostly light to moderate, vigor has improved, and percent decadence has declined slightly. Average annual leader growth is substantially lower than the average for mountain big sagebrush in this unit (1.8" vs 2.5"). Density of the increaser, stickyleaf low rabbitbrush, has remained stable. Trend for the herbaceous understory is stable for perennial species. However, perennials are still depleted as most perennial grasses are only found growing within the protection of sagebrush crowns. Annual Japanese brome, which dominated the herbaceous understory in 1996 has declined significantly in nested frequency. It's cover has declined from 26% in 1996 to only 2% in 2001. Perennial forbs increased slightly in nested frequency but annual forbs also increased. Annuals, bur buttercup and *Veronica biloba,* both increased significantly in nested frequency and now account for 38% of the forb cover. The only common perennial species consist of wild onion and American vetch. Conditions on this site will likely never improve much due to the consistent spring and summer use by livestock.

TREND ASSESSMENT
soil - down slightly (2)
browse - stable (3)
herbaceous understory - stable but perennials are depleted (3)

HERBACEOUS TRENDS --
Herd unit 04 , Study no: 8

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron dasystachyum	a-	a-	b18	b18	-	-	6	5	1.52	1.67
G	Agropyron spicatum	-	4	10	7	-	3	3	3	.18	.18
G	Bromus brizaeformis (a)	-	-	4	12	-	-	2	5	.01	.10
G	Bromus japonicus (a)	-	-	b382	a198	-	-	100	77	26.01	1.53
G	Bromus tectorum (a)	-	-	a6	b25	-	-	2	9	.03	.51
G	Elymus cinereus	3	1	7	7	1	1	3	3	.06	.83
G	Oryzopsis hymenoides	-	-	1	6	-	-	1	2	.03	.18
G	Poa secunda	a-	a-	b13	b12	-	-	6	6	.08	.13
Total for Annual Grasses		0	0	392	235	0	0	104	91	26.05	2.15
Total for Perennial Grasses		3	5	49	50	1	4	19	19	1.89	3.00
Total for Grasses		3	5	441	285	1	4	123	110	27.95	5.15
F	Achillea millefolium	-	5	3	3	-	2	1	1	.03	.15
F	Allium acuminatum	a1	a4	b25	c123	1	3	14	63	.07	.55
F	Alyssum alyssoides (a)	-	-	212	78	-	-	78	33	.96	.21
F	Astragalus beckwithii	ab3	a-	a-	b10	1	-	-	6	-	.15
F	Aster chilensis	-	3	-	-	-	1	-	-	-	-
F	Astragalus convallarius	-	-	6	-	-	-	3	-	.06	-
F	Astragalus utahensis	-	-	2	1	-	-	2	1	.01	.00
F	Camelina microcarpa (a)	-	-	15	13	-	-	6	9	.03	.04
F	Calochortus nuttallii	-	-	-	2	-	-	-	1	-	.00
F	Cirsium undulatum	8	4	15	6	5	3	7	4	.12	.10
F	Collomia linearis (a)	-	-	a8	b30	-	-	3	14	.01	.12
F	Comandra pallida	a-	a-	ab10	b11	-	-	4	5	.07	.10
F	Collinsia parviflora (a)	-	-	a-	b34	-	-	-	11	-	.18
F	Descurainia pinnata (a)	-	-	-	2	-	-	-	2	-	.01
F	Epilobium brachycarpum (a)	-	-	-	4	-	-	-	2	-	.01
F	Erodium cicutarium (a)	-	-	16	7	-	-	6	2	.10	.03
F	Galium aparine (a)	-	-	3	1	-	-	1	1	.00	.03
F	Gayophytum ramosissimum (a)	-	-	11	-	-	-	4	-	.02	-
F	Hackelia patens	a-	b15	b14	b12	-	8	8	6	.16	.25

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Helianthus annuus (a)	-	1	-	1	-	1	-	1	-	.00
F	Holosteum umbellatum (a)	-	-	$_{a}$-	$_{b}$18	-	-	-	7	-	.08
F	Lactuca serriola	-	-	9	-	-	-	4	-	.02	.00
F	Machaeranthera canescens	-	-	1	-	-	-	1	-	.00	-
F	Microsteris gracilis (a)	-	-	$_{a}$-	$_{b}$55	-	-	-	24	-	.32
F	Phlox longifolia	$_{a}$-	$_{c}$117	$_{a}$4	$_{b}$38	-	52	2	17	.01	.13
F	Ranunculus testiculatus (a)	-	-	$_{a}$53	$_{b}$220	-	-	17	69	.13	4.38
F	Tragopogon dubius	1	3	9	3	1	1	4	1	.02	.00
F	Veronica biloba (a)	-	-	$_{a}$7	$_{b}$341	-	-	3	97	.04	7.48
F	Verbascum blattaria	$_{a}$-	$_{a}$-	$_{b}$31	$_{a}$-	-	-	14	-	.09	-
F	Vicia americana	$_{a}$-	$_{b}$31	$_{c}$92	$_{c}$98	-	15	46	45	1.06	1.46
Total for Annual Forbs		0	1	325	804	0	1	118	272	1.31	12.92
Total for Perennial Forbs		13	182	221	307	8	85	110	150	1.74	2.92
Total for Forbs		13	183	546	1111	8	86	228	422	3.06	15.84

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 04 , Study no: 8

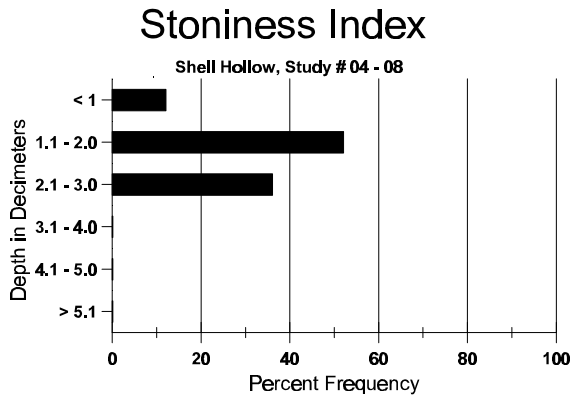
Type	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Amelanchier alnifolia	1	1	-	-
B	Artemisia tridentata vaseyana	97	88	22.27	26.68
B	Chrysothamnus nauseosus albicaulis	8	10	1.83	1.88
B	Chrysothamnus viscidiflorus viscidiflorus	76	65	6.00	2.81
B	Gutierrezia sarothrae	3	9	-	.36
Total for Browse		185	173	30.11	31.75

BASIC COVER --
Herd unit 04 , Study no: 8

Cover Type	Nested Frequency		Average Cover %			
	'96	'01	'84	'90	'96	'01
Vegetation	393	368	1.50	5.75	55.91	52.17
Rock	130	78	2.50	1.50	1.75	1.55
Pavement	174	254	10.75	13.50	1.62	5.81
Litter	394	368	58.00	47.75	51.50	46.72
Cryptogams	15	1	0	0	.06	.03
Bare Ground	203	217	27.25	31.50	8.15	18.02

SOIL ANALYSIS DATA --
Herd Unit 04, Study no: 08, Shell Hollow

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
10.6	78.2 (11.9)	7.8	49.6	23.4	27.0	2.5	18.1	217.6	.7



PELLET GROUP FREQUENCY --
Herd unit 04 , Study no: 8

Type	Quadrat Frequency		Pellet Transect	
	'96	'01	Pellet Groups per Acre ⁄01	Days Use per Acre (ha) ⁄01
Rabbit	-	6	-	-
Deer	10	6	270	21 (51)
Cattle	-	1	26	2 (5)
Rabbit	-	-	87	N/A

BROWSE CHARACTERISTICS --
Herd unit 04 , Study no: 8

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier alnifolia																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	1	-	-	-	-	-	-	1	-	-	-	20	23	40	1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	43	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	100%	00%	+ 0%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'84	0		-
	'90	0		-
	'96	20		-
	'01	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	8	-	-	-	-	-	-	-	-	8	-	-	-	533			8
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	1	5	-	-	-	-	-	-	-	6	-	-	-	400			6
	90	3	-	-	-	-	-	1	-	-	4	-	-	-	266			4
	96	19	-	-	-	-	-	-	-	-	17	-	2	-	380			19
	01	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
M	84	1	32	9	-	-	-	-	-	-	42	-	-	-	2800	30	34	42
	90	8	14	-	-	-	-	-	-	-	22	-	-	-	1466	29	37	22
	96	79	68	15	-	-	-	-	-	-	119	-	43	-	3240	29	48	162
	01	96	27	1	5	-	-	-	-	-	128	1	-	-	2580	35	47	129
D	84	-	16	8	-	-	-	-	-	-	22	-	2	-	1600			24
	90	10	20	1	-	-	-	-	-	-	20	-	1	10	2066			31
	96	17	35	5	1	-	-	-	-	-	36	-	19	3	1160			58
	01	24	6	2	1	-	-	-	-	-	20	-	1	12	660			33
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	460			23
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	540			27

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	74%	24%	03%	-21%
'90	60%	02%	19%	+21%
'96	43%	08%	28%	-30%
'01	20%	02%	08%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	4800	Dec:	33%
	'90	3798		54%
	'96	4780		24%
	'01	3340		20%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus nauseosus albicaulis																		
Y	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	84	-	1	-	-	-	-	-	-	-	1	-	-	-	66	21	27	1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	8	-	-	-	-	-	-	-	-	7	-	1	-	160	29	38	8
	01	3	-	-	1	-	-	-	-	-	4	-	-	-	80	32	44	4
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	2	2	-	-	-	-	-	-	-	2	-	-	2	266			4
	96	1	-	-	1	-	-	-	-	-	2	-	-	-	40			2
	01	4	1	-	-	-	-	-	-	-	4	-	-	1	100			5
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	50%	00%	00%	+50%
'90	50%	00%	50%	-17%
'96	00%	00%	09%	- 9%
'01	10%	00%	10%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'84	132		0%
	'90	266		100%
	'96	220		18%
	'01	200		50%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus viscidiflorus																		
Y	84	-	1	-	-	-	-	-	-	-	-	1	-	-	66			1
	90	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	96	24	-	-	8	-	-	-	-	-	32	-	-	-	640			32
	01	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8
M	84	12	12	-	-	-	-	-	-	-	19	5	-	-	1600	14	17	24
	90	15	6	1	7	1	-	-	-	-	27	-	3	-	2000	10	12	30
	96	169	2	-	57	-	-	-	-	-	216	1	11	-	4560	13	16	228
	01	195	10	-	1	-	-	7	-	-	213	-	-	-	4260	9	13	213
D	84	-	2	-	-	-	-	-	-	-	2	-	-	-	133			2
	90	5	4	-	5	-	-	6	-	-	7	-	-	13	1333			20
	96	3	4	-	1	-	-	-	-	-	5	-	1	2	160			8
	01	7	-	-	-	-	-	-	-	-	2	-	-	5	140			7
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	56%	00%	00%	+49%
'90	21%	02%	30%	+34%
'96	02%	00%	05%	-15%
'01	04%	00%	02%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	1799	Dec:	7%
'90	3533		38%
'96	5360		3%
'01	4560		3%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	7	-	-	-	-	-	-	-	-	7	-	-	-	140	11	9	7
	01	11	-	-	-	-	-	-	-	-	11	-	-	-	220	8	10	11
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	3	-	-	-	-	-	-	-	-	2	-	-	1	60			3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	+50%
'01	00%	00%	07%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	0%
	'90	0		0%
	'96	140		0%
	'01	280		21%

Opuntia spp.

M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	4	9	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	4	14	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	-
	'90	0		-
	'96	0		-
	'01	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Rhus trilobata																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	72	128	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'84	00%	00%	00%
'90	00%	00%	00%
'96	00%	00%	00%
'01	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	-
	'90	0		-
	'96	0		-
	'01	0		-